

EXECUTIVE SUMMARY

The ancestral home of the Nisqually Indian Tribe, the Nisqually River Basin (Figure 1), Water Resource Inventory Area 11 (WRIA 11) was one of the earliest areas settled in the Puget Sound area by Euro-American immigrants. This basin was prized for its deep-water access to saltwater, large tracts of pristine old growth forests, native prairies, fertile river valley soils, and numerous species of wildlife and abundant runs of salmon. The Hudson Bay Company established Fort Nisqually, as a fur trading post, in 1833 near the mouth of the Nisqually River. Homesteads and settlements began appearing as early as the 1840's and the new arrivals initiated a series of actions to modify the landscape to fit their needs. In 1850, the US Congress passed the Donation Land Law encouraging the settlement of the Washington and Oregon Territory. A chronology of events that have impacted the Nisqually River Basin is shown in Table 1. The known distribution of anadromous salmon, steelhead, and coastal cutthroat can be found in Appendix A, Figures 1-6.

The diking of the estuary, which started in 1904, was largely completed during the late 1920's. These dikes continue to be largely in place and maintained today.

Two hydroelectric projects have been constructed in WRIA 11. The Yelm Hydroelectric Project, constructed in 1929, consists of a diversion dam located at River Mile (RM) 26.2, a canal that transports water to a powerhouse, located at RM 12.7, where the water is returned to the mainstem Nisqually River. The original dam was a log structure with a log energy dispersion apron. It is doubtful that this structure was passable to adult salmonids and a fish ladder was not constructed until after several years of operation. Anadromous fish were delayed in their upstream migration by the operation of this facility. Between 1930 and 1955 there were no fish screens on the canal entrance. This would have allowed juvenile salmonids to enter the canal where the only exit would have been through the powerhouse turbines. Between 1955 and 1968 this project effectively diverted all the water during periods of low flow from the mainstem Nisqually River through the canal. The facility has undergone extensive renovations and currently meets all fish passage and protection standards.

The LaGrande Hydroelectric Project began in 1910 with major renovation in 1942. There is considerable doubt that anadromous fish were able to migrate much further upstream of this project due to the natural presence of a barrier in LaGrande Canyon.

Minimum instream flows were not established for the Nisqually River until 1978. The hydroelectric projects in the Nisqually River are not intended to provide flood control but the Alder/LaGrande Project does provide some flood tempering as a part of standard operations. The operations of the hydroelectric projects do not provide a naturalized flow regime to the mainstem Nisqually River.

The salmonid resources of the Nisqually River Basin has been adversely impacted through a variety of land use practices. Commercial timber activities have increased sediment loads, reduced large woody debris input and recruitment potential, and altered precipitation run-off patterns. The conversion of pristine valley bottom lands and wetlands to agricultural purposes and now to rural residential and hobby farms has reduced the natural biological processes of these parcels necessary for the natural production of salmonids in the Nisqually River Basin.

The Nisqually River estuary, has lost approximately 30 percent of its historical intertidal and subtidal habitat. Of critical importance to the natural production of salmonids is the 54 percent loss in intertidal emergent marsh habitats. The mainstem Nisqually River is constrained by a system of revetments and levees in the lower 5.2 river miles, remnant flood control dikes in areas near McKenna and maintained dikes that protect the Yelm Diversion Canal between RM 21.8 to 26.4. These channel containment structures are shown in Appendix A (Figure A-8) inhibit lateral channel migration and have eliminated much of the spawning and rearing habitats that were once present. Additionally, there is some evidence that suggests off-channel rearing habitats have been reduced in the mainstem Nisqually River between 1965 and 1995. Currently, off-channel rearing habitats are virtually absent between river miles 10 and 25.

This report examines these process changes and their associated functional implications in the Nisqually River Basin. While the Nisqually River Estuary is thought by many to be pristine, there has been a significant loss of estuarine habitat and function. Much of the historical estuary is in public ownership and available for return to historic habitats. Portions of the mainstem Nisqually River corridor are in good condition and in these reaches preservation is the preferred alternative. The cost associated with preserving the remaining functioning habitats and attempting to restore portions of lost habitats will be substantial. Many of the biological functions historically present in the Nisqually River Basin can be partially or fully restored. This restoration will require fundamental changes in land use to restore self-sustaining populations of salmonids in this basin. While the Nisqually River Basin is faced with many critical issues, it is the opinion of the Technical Advisory Group that it is still capable of self-sustaining runs of naturally produced salmonids.

Figure 1– Nisqually River Basin (WRIA 11) Location Map

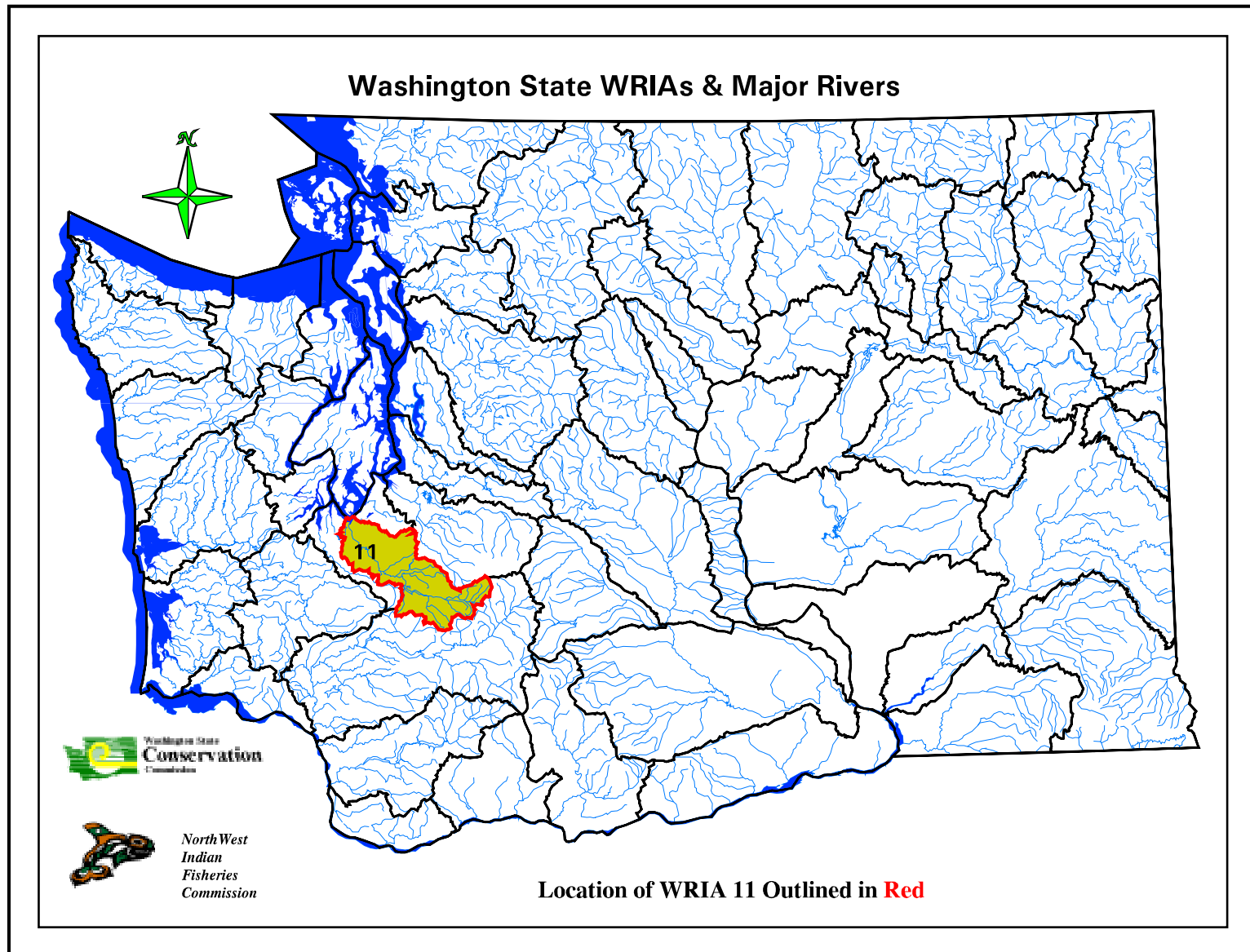


Table 1 : Nisqually River Basin Chronology of Major Events

Date	Event	Impact(s)
1792	First European description of the Nisqually River mouth	Initial description of attributes of area of Nisqually River
1833	Hudson Bay Co. selects site for Fort Nisqually	First Euro-American settlement in Nisqually River Basin
1845	Initial European settlers arrive in vicinity of McAllister Creek	Land clearing and farming begins
1850	Donation Land Claim Law	Encouraged settlement of Oregon and Wash.
1852	First ferry operated across Nisqually River	Transportation through the valley
1853	First railroad surveys conducted	First mapping attempts of historical habitat
1854	Medicine Creek Treaty signed	Large tracts of land are given up by the Nisqually Indian Tribe
1858	Laws permitting draining passed	Wetlands drainage begins.
1870	Irrigation of agricultural lands begins	Water withdrawals from surface waters
1889	Upper Ohop Creek diverted into Puyallup River	Loss of approximately 30% of flow in lower Ohop Creek
1899	Mt. Rainier National Park established	Headwaters of Nisqually River preserved.
1904	First dikes constructed on Nisqually River Delta	Tidal marshlands lost.
1910	LaGrande Hydroelectric Project constructed	Water flow regimes altered and interception of large woody debris
1912	Northern Pacific Railway constructs Point Defiance line	First mainline railroad bridge across Nisqually River
1929	Yelm Hydroelectric Project constructed	Significant adverse impacts to salmon runs occur.
1940's – 70's	Major logging activities in the upper watersheds	Logging road construction and impacts to riparian buffers and habitat
1965	Port of Tacoma announces annexation Of 1100 acres of Nisqually Delta for deepwater port	Plans opposed by local environmental groups
1971	U.S. Department of Interior designates 2756 acres of Nisqually Delta as a Natural Landmark	Preservation of Nisqually Delta
1974	The Brown Farm purchased by the Dept. Of Interior and designated a national Wildlife refuge	2818 acres of delta included as Nisqually National Wildlife Refuge
1978	Minimum flow regime ordered by FREC	Salmon transportation, incubation and rearing flows established for the central Nisqually River
1999	Puget Sound Chinook Listed as Threatened under the Endangered Species Act	Unknown